



3. Apparatus for game playing in accordance with  
5 claim 2 wherein

4. Apparatus for game playing in accordance with claim 3 wherein said circuit trace material is in an interdigitated form in an area under said resilient dome cap, and

5. Apparatus for game playing in accordance with claim 4 further including conductive material contacting the interdigitated circuit trace material when said button is depressed.

25           a game controller structured to be held by a human  
user in two hands simultaneously, said controller  
comprising:

housing means for being held by the human user;  
a plurality of depressible individual buttons exposed  
30 on said housing means and depressible by digits of the  
user's hands to operate

electricity manipulating devices contained within  
said housing means and operated for manipulating

electrical outputs of said electricity manipulating devices by depression of said depressible individual buttons; at least one of said electricity manipulating devices including

5 means for an analog electrical output proportional to varying physical pressure applied by at least one depressible individual button of the plurality of depressible individual buttons;

means for outputting a signal from said controller to  
10 said image generation machine, said signal at least representational of said analog electrical output.

7. Apparatus for game playing in accordance with claim 6 wherein said housing means is structured as a  
15 single housing to be held by two hands simultaneously.

8. Apparatus for game playing in accordance with claim 7 wherein said means for an analog electrical output includes a resilient dome cap positioned over a first  
20 circuit trace and a second circuit trace, the circuit traces are in close proximity to one another.

9. Apparatus for game playing in accordance with claim 8 further comprising  
25 conductive material positioned to contact across the circuit traces when said resilient dome cap is depressed.

10. Apparatus for game playing in accordance with claim 9 wherein said resilient dome cap includes a substantially convexed portion positioned to press against  
30 said conductive material when said resilient dome cap is depressed.

11. Apparatus for game playing in accordance with claim 10 wherein said convexed portion of said resilient dome cap is deformable when pressed against said  
35 conductive material.

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12. Apparatus for game playing in accordance with claim 11 further comprising

5 a left hand area and a right hand area of said housing, and said one depressible individual button is position in said right hand area.

13. Apparatus for game playing in accordance with claim 12 further comprising

a four-way rocker at least in part exposed on said housing in said left hand area.

10 14. Apparatus for game playing in accordance with claim 13 further comprising

four analog sensors associated with said four-way rocker.

15 15. Apparatus for game playing in accordance with claim 14 further comprising

each sensor of said four analog sensors including a resilient dome cap.

16. Apparatus for game playing, comprising  
a game console capable of controlling imagery shown by a television, said game console at least in-part controlled by

a controller, said controller comprising:

25 a housing to be grasped and held simultaneously by two hands of a human user; said housing including a right-hand area and a left-hand area, said right-hand area being an area for grasping by the user's right hand, said left-hand area being an area for grasping by the user's left hand;

30 a plurality of depressible individual buttons located on said housing in said right-hand area and positioned to be within reach of the user's right-hand thumb with the

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at least one of said electricity manipulating devices includes means for creating an On/Off signal;

5 each of said electricity manipulating devices electrically connected to

means for converting the signals into control of  
10 imagery shown by said display, the signals representing at  
least the analog nature of said analog electrical signal,  
and the signals representing at least the On/Off nature of  
said On/Off signal.

22. Apparatus for game playing according to claim 20 wherein said at least one device, and said at least one of said electricity manipulating devices, is a single device of said electricity manipulating devices.

25           a hand held controller,  
          said controller comprising:

a plurality of depressible electricity manipulating devices each at least in-part exposed on said housing,  
at least one of said electricity manipulating devices

a depressible resilient dome cap positioned over electrically conductive material, variable depression of said dome cap defining an analog electrical output  
5 representing said variable depression,

10           24. Apparatus for image control according to claim  
23 wherein said conductive material is pressure-sensitive  
variable-conductance material.

26. Apparatus for image control according to claim  
23 wherein said depressible resilient dome cap has a  
20 substantially convexly rounded inner portion positioned  
over

27. Apparatus for image control according to claim  
26 wherein said active electronics means includes an  
25 integrated circuit chip.

29. Apparatus for image control according to claim  
30 27 wherein said active electronics means includes an ASIC.



a depressible resilient dome cap to apply pressure to electrically conductive material, said sensor for creating  
5 analog output proportional to varying physical pressure applied by the user's digit to said depressible surface; said sensor electrically connected to

said sensor positioned as part of a two-hand held controller, said controller for controlling imagery at least in part in relation to the analog output.

32. An electricity manipulating sensor for a control device according to claim 31 wherein said substantially convexed shaped surface area has an apex, said surface area is a rounded bulging area which is flexible, said rounded bulging area increasingly flattens with increasing pressure applied to said resilient dome cap.

33. An electricity manipulating sensor for a control device according to claim 32 wherein the flattening of said rounded bulging area causes additional surface area contact of said electrically conductive material with circuit trace material.

34. An electricity manipulating sensor for a control device according to claim 33 wherein said circuit trace

material comprises a first circuit trace and a second circuit trace.

35. An electricity manipulating sensor for a control device according to claim 34 wherein said first circuit trace and said second circuit trace are interdigitated.

36. An electricity manipulating sensor for a control device according to claim 33 wherein said control device is a game control device including a housing to be grasped and held simultaneously by two hands of the human user during use, said housing including a right-hand area and a left-hand area, said right-hand area being an area for at least grasping by the user's right hand, said left-hand area being an area for at least grasping by the user's left hand, said depressible surface area is located in said right-hand area.

37. An electricity manipulating sensor for a control device according to claim 36 wherein said housing is a single housing, and said depressible surface area is located to be depressed by a user's right-hand thumb.

38. An electricity manipulating sensor for a control device according to claim 36 wherein said housing is a single housing, and said depressible surface area is located to be depressed by a user's right-hand index finger.

39. Game apparatus comprising:  
an image display displaying game imagery, said image display connected to  
an image generation machine, said image generation machine driving the game imagery, said image generation machine at least in-part controlled by

a controller, said controller comprising:

a single housing to be grasped and held simultaneously by two hands of a human user, said housing including a right-hand area and a left-hand area;

5 a plurality of depressible electricity manipulating devices each at least in-part exposed on said housing;

at least one of said electricity manipulating devices including means for creating an On/Off output, and

10 at least one of said electricity manipulating devices including a pressure-sensitive variable-conductance means for creating a varying output related to varying pressure applied by a user's right-hand digit;

active electronics means for at least interpreting the outputs of said at least one electricity manipulating  
15 device.

40. Game apparatus according to claim 39 wherein said varying pressure is applied by the user's right-hand thumb.

41. Game apparatus according to claim 39 wherein  
20 said varying pressure is applied by the user's right-hand index finger.

42. Game apparatus according to claim 39 wherein a four-way rocker is located in said left-hand area.

43. Game apparatus according to claim 42 wherein  
25 said pressure-sensitive variable-conductance means includes means for establishing additional current paths, whereby electrical resistance is lowered according to pressure applied by the user's right-hand digit.

44. Game apparatus according to claim 43 wherein  
30 said pressure-sensitive variable-conductance means includes a deformable surface on an underside of a resilient dome cap.

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45. Game apparatus according to claim 44 wherein said varying pressure is applied by the user's right-hand thumb.

46. Game apparatus according to claim 44 wherein  
5 said varying pressure is applied by the user's right-hand index finger.

47. Game apparatus according to claim 45 wherein said deformable surface includes an apex.

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